Together towards pink–white aesthetics

Communication is the foundation for natural-looking results

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In the field of prosthetic dentistry, effective communication between the clinician and the dental technician is of the utmost importance. Consistent close cooperation between the dentist and the dental technician and their concerted action provide the basis for a successful outcome. This article demonstrates the importance of good cooperation in a case that involved soft-tissue remodelling in the anterior region, among other things.

A 32-year-old female patient presented to our practice with an unsightly, defective anterior bridge extending from tooth #12 to tooth #21. The bridge had been placed seven years previously but the patient was unsatisfied with her smile and was seeking an aesthetic, more natural-looking alternative. The veneer of the metal–ceramic bridge had a very opaque and yellowish appearance.

At tooth #21, the metal margin was exposed cervically owing to gingival recession. Alveolar ridge atrophy in the area of the missing right central incisor (pontic) had resulted in a considerable vertical reduction. The shape and shade of the teeth needed improvement, and harmony between the white and pink tissues had to be restored (Fig. 1).

Treatment plan and mock-up

Smile improvements often involve complex procedures; therefore, it is advisable to simulate the final result by means of a direct composite mock-up. This important step boosts the patient’s trust and confidence. A mock-up provides the patient with a clear idea of what the effect of the planned restoration will be once it has been seated in the mouth.

In our opinion, this step cannot be entirely replaced by digital design previews. Furthermore, the mock-up allows the laboratory technician to obtain a better understanding of the individual clinical situation. Later, it can be used as a template in the fabrication of the laboratory wax-up and/or the provisional restoration.

In our case, the mock-up revealed that in order to achieve a more balanced appearance, tooth #22 had to be integrated into the restoration (Fig. 2). Even more important, it showed that not only the correct position, shape and colour of the teeth, but also the correct gingival architecture and emergence profiles were key factors in achieving a harmonious smile in this case. Consequently, the patient was informed that the soft-tissue volume would have to be increased in the pontic area in order to achieve a satisfactory result. The patient fully agreed to the treatment plan suggested.

Overall, the treatment plan involved the removal of the existing restoration, the placement of a provisional bridge and soft-tissue grafting in the pontic area (soft-tissue management that would take several months), as well as the insertion of a new ceramic bridge and a laminate veneer on teeth #22 and #13, if needed.

Connective tissue graft and immediate provisional bridge

Frequently, tooth extraction is considered a possible cause of alveolar ridge atrophy. In this particular case, there was a considerable lack of volume due to bone loss in the pontic area. For the purpose of re-establishing the soft-tissue architecture, two surgical interventions were planned. Immediately after the first connective tissue graft had been performed, a laboratory-fabricated provisional bridge was placed. The bridge was constructed on the basis of the mock-up information and reinforced with metal wire.

The soft-tissue contouring phase that followed took several months. Initially, the provisional exhibited an inner concave surface to provide sufficient space for the soft tissue. It has been suggested that a provisional pontic should have a convex final shape. However, having a concave initial shape allows for progressive tissue modelling from the palatal to the buccal side, which is helpful especially when several grafts are needed (Figs. 3a–6d).

Communication of emergence profiles and shapes to the laboratory

Once the desired soft-tissue shape had been achieved, one of the great challenges was to transmit all of the relevant information, especially the length of the inter-incisal papillae and the pontic shape, to the laboratory. This is important because when the impression is made, the pressure of the impression material may deform the soft tissue. In order to prevent any possible loss of information, the pontic area of the provisional restoration was filled with a silicone-based impression material and then placed over the prepared teeth on...
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ly with the remaining den-

It is well established in the liter-
unlike that a papilla will be present if the contact point is no more than 6.5 mm away from the most
coronal interproximal height of the bone crest between a natural tooth and a pontic. This can be measured by probing the bone with an endodontic spreader, marking the distance during the ceramic try-in and then using it in the fabrication of the restoration.

However, using this distance can lead to a very large contact area with a short papilla if the bone is missing. This is an unusual, square tooth shape. Hence, this is important informa-
tion for the technician. When ap-
plied wisely during ceramic lay-
ering, interproximal pink, brown and yellow stains can be made to look very natural illusion and thus helps to overcome this problem. In the course of the treatment in this case, it became clear that the restoration of tooth #13 was un-
necessary to achieve the desired outcome.

The try-in of the restoration showed that the zeniths of the gingival contours were mis-
placed. The use of slide sharing software allowed us to transmit visual information to the dental technician regarding the issues of the desired gingival zenith, inter-
proximal stains (to mask the inter-
proximal spaces) and the posi-
tion of the buccal ridges, which is of paramount importance for the visual perception (Fig. 9).

Final restorations
Even though cementing the ve-
ners first has certain advantages (colour stabilisation), in this par-
ticular case, both types of restora-
tions were cemented simultane-
ously. The veneer for tooth #12 was pressed from IPS e.max Press lithium disilicate glass-ceramic (LT ingot in Shade A2, Ivoclar Vivadent) and completed with IPS e.max Ceram (Ivoclar Vivadent). The pressable ceramic is available in various degrees of opacity and enables aesthetic restorations to be fabricated that blend seam-
lessly with the remaining den-
tition. Variolink Esthetic LC (in a neutral shade; Ivoclar Vivadent),

IPS e.max Ceram (Ivoclar Vivadent), a light-curing luting composite, was used to cement the laminate veneer (Figs. 10–13).

The porcelain-fused-to-zirconia bridge (IPS e.max ZirCAD, Ivoclar Vivadent, veneered with IPS e.max Ceram) was cemented with the self-adhesive, self-curing resin cement SpeedCEM (in the transparent shade; Ivoclar Vivadent) according to the in-
structions given by the manu-
facturer.

Conclusion
Smile improvements are very challenging, particularly if har-
monisation of the gingival archi-
tecture, in addition to restoring the white aesthetics, is required. Only by choosing a multidisci-
plinary treatment approach will mutually beneficial communi-
cation between the dentist and dental technician take place. This is a prerequisite for achieving success.